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10/805,131	03/19/2004	Bjoern Magnussen	ELLIP-007USB	3151

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EXAMINER	
DOUGHERTY, THOMAS M	
ART UNIT	PAPER NUMBER
2834	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/805,131	MAGNUSSEN ET AL.	
	Examiner	Art Unit	
	Thomas M. Dougherty	2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 June 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6,10-49 and 51-63* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *21-38,48,49,51 and 61-63* is/are allowed.

6)☒ Claim(s) *1-6,10-20,39-47 and 52-60* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☒ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Applicant's arguments, see paper, filed 6/11/07, with respect to the rejection(s) of claim(s) rejected under Maeno et al. ('660) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of the claims. The Applicants' assertion that it is not obvious to combine Maeno et al. and Tobe et al. in a rejection is disputed. The Examiner recognizes that references cannot be arbitrarily combined and that there must be some reason why one skilled in the art would be motivated to make the proposed combination of primary and secondary references. *In re Nomiya*, 184 USPQ 607 (CCPA 1975). However there is no requirement that a motivation to make the modification be expressly articulated. The test for combining references is what the combination of disclosures taken as a whole would suggest to one of ordinary skill in the art. *In re McLaughlin,* 170 USPQ 209 (CCPA 1971). References are evaluated by what they suggest to one versed in the art, rather than by their specific disclosures. *In re Bozek*, 163 USPQ 545 (CCPA) 1969. In this case, the suggestions are noted in the rejections below.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 10, 11 and 13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. These claims depend on canceled claim 8. These claims are not further evaluated.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-3, 5, 6, 39-47, 52, 54, 56, 57, 59 and 60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tobe et al. (US 6,091,179) in view of Maeno et al. (US 6,380,660). Tobe et al. show (figs. 1A-3A) a drive system comprising at least one vibrating motor (10) having at least one vibration generator each (12a, 12b *et alia*) as well as at least one resonator each (11) and a device (4) that is driven by the at least one motor (10), the resonator having a contact area (33) that cooperates with a driven surface of the device (4) to drive said device (4) along a path with the path and driven surface extending along one of a **straight** or curved axis, at least one of the resonator contact area (33) and the device (4) surface having a surface profile (see esp. fig. 2A) configured to guide the device (4) along the path by having side surfaces located on opposing sides of the path to keep the device between the side surfaces and on the

path, with the driven element rotating about an axis passing through that portion of the two planes that each contain one of the side surface when the path is curved, and **with the driven element translating along an axis that does not pass through those portions of the planes when the path is straight.**

The vibrating generator is made of a piezoelectric material. See col. 7, lines19-21.

The contact area (33) comprises an **indentation** or protrusion and the driven surface is of a different hardness and the contact area is shaped by wear. Note at col. 5, lines 18-30 and col. 6, lines 1-11 that various materials can be used for either component. How the contact area is shaped by wear is simply based on time and on the selected materials. Given that no specific materials are claimed, this feature is a goal of the invention and does not carry patentable weight.

The device surface driven by the contact area has a profile comprising an indentation produced by wear. This does not carry patentable weight. Citation of such would require the device to be used to the point of wear before it is put into application.

The contact area (33) on the resonator is made of a softer material than the driven surface. Again note the materials cited at col. 5, lines 18-30 and col. 6, lines 1-11.

Tobe et al. show (figs. 1A-3A) a piezoelectric drive system, comprising: a piezoelectric vibration motor (10) having a selected contacting portion (33) to drivingly engage a driven element (4) and to move it along one of a **straight** or curved path when an electric control signal is applied to the piezoelectric motor (10), and wherein the selected contacting portion (33) comprises an indentation having side surfaces located

on opposing sides of the path so that the selected contacting portion (33) partially embraces the driven element (4) with the resonator having a longitudinal axis along which the major portion of resonator movement occurs and with the longitudinal axis aligning with the path at the contacting portion located between the opposing sides.

The path is perpendicular to surface normals of the side surfaces at locations where the driven element night contact the side surfaces.

The path is straight.

The piezoelectric vibration motor comprises a piezoelectric element (12a, 12b) having a predominant axis that is parallel to the path. Note that they are arranged side by side in a longitudinal direction.

The piezoelectric vibration motor (10) has an elongated shape and the selected contacting portion (4) is located on one side of that elongated shape.

The piezoelectric vibration motor has an elongated shape and the selected contacting portion is located on an edge of that elongated shape. See figure 1B where it is clear that there is an indentation within an indentation and that the smaller indentation has an edge in a longitudinal direction.

Tobe et al. show the driven element as being resiliently urged against the piezoelectric motor by a spring (34).

The path is straight and the contact area is on a portion of a resonator extending along a longitudinal axis that is parallel to the axis along the path.

The path is straight and the side surfaces restrain movement of the driven device along a direction that is in the plane of the path and perpendicular to the path.

There are two sets of side surfaces located on opposing sides of the driven device (4). Note in figure 1B that there are two U-shaped indentations, one within the other, thus two sets of side surfaces on opposing sides of the device.

The path is straight and the side surfaces restrain movement of the driven element (4) along a direction that is in the plane of the path and perpendicular to the path.

As just noted there are two sets of side surfaces with each set located on opposing sides of the driven element (4).

Tobe et al. do not show each side surface in explicit or constant contact with the device. They don't show a beveled surface inclined at an angle.

Maeno et al. show (fig. 1) a drive system comprising at least one vibrating motor (1) having at least one vibration generator each (3) as well as at least one resonator each (201, 202) and a device (401, 402) that is driven by the at least one motor (1), the resonator having a contact area (201c, 202c) that cooperates with a driven surface of the device (4) to drive said device (4) along a path with the path and driven surface extending along one of a straight or curved axis, at least one of the resonator contact area (201c, 202c) and the device (401, 402) surface having side surfaces opposing sides of the path with each side surface in contact with the device (401, 402) to keep the device (401, 402) along the path by having side surfaces located on opposing sides of the path to keep the device between the side surfaces and on the path, with the driven element rotating about an axis.

Maeno et al. do not show an axis passing through that portion of the two planes that each contain one of the side surface when the path is curved, and with the driven element translating along an axis that does not pass through those portions of the planes when the path is straight.

Maeno et al. show a beveled surface (201c in fig. 2) inclined at an angle selected to place that side surface into flat engagement with the engaging surface of the driven element.

Maeno et al. show the piezoelectric motor engaging two driven elements.

Maeno et al. further show the contact area on an edge of a portion of a resonator where the portion of a resonator extends along a longitudinal axis that is not parallel to the axis along the path.

It would have been obvious to one having ordinary skill in the art to show each side surface in contact with the device of Tobe et al. such as is taught by Maeno et al. in order to provide more precise movement as Maeno et al. teach in their figures.

Regarding use of a spring and contact shapes, it would be obvious in a combined device of Maeno et al. and Tobe et al. to employ such to ensure good contact between the driven element and the driving element.

Claims 1, 2, 4, 5, 39, 52, 53, 55 and 58 are rejected under 35 U.S.C. 103(a) as obvious over Maeno et al. (US 6,380,660). Maeno et al. show (figs. 1, 2) a drive system comprising at least one vibrating motor having at least one vibration generator (3) each as well as at least one resonator (201, 202) each and a device (401, 402) that is driven by the at least one motor, the resonator (201, 202) having a contact area that

cooperates with a driven surface of the device (401, 402) to drive said device (401, 402) along a path with the path and driven surface extending along one of a straight or circular axis, at least one of the resonator (201, 202) contact area and the device (401, 402) surface having a surface profile (201c, 202c) configured to guide the device (401, 402) along the path and contacting the other of the resonator contact area and device surface by having side surfaces located on opposing sides of the path with each side surface in contact with the device to keep the device between the side surfaces and on the path. The vibrating generator (3) is made of a piezoelectric material. See col. 6, line 13.

The device surface (of 401, 402) driven by the contact area (201c, 202c) has a profile comprising an indentation or protrusion. Note that the contact areas (201c, 202) are indented in a circular cut-out fashion.

The device (401, 402) surface driven by the contact area (201c, 202c) has a profile comprising an indentation produced by wear. Note that over time such would occur, particularly in the figure 2 embodiment where the 201c and 202c surfaces do not precisely match the shape of 401 and 402.

Maeno et al. show (figs. 1 and 2) a piezoelectric drive system comprising: a piezoelectric vibration motor having a selected contacting portion (201b, 202b) to drivingly engage a driven element (401, 402) and to move it along one of a straight or curved path when an electric control signal is applied to the piezoelectric motor, and wherein the selected contacting portion comprises an indentation (201c, 202c) having side surfaces located on opposing sides of the path so that the selected contacting

portion partially embraces the driven element (401, 402) to keep the driven element between the side surfaces and on the path.

The contact area (201c, 202c) is on an edge of a portion (top and bottom edges) of a resonator where the portion of a resonator extends along a longitudinal axis that is not parallel to the axis along the path. Note that the path is circular and the resonator linearly arranged.

The path is curved (it's a circular path) and the contact area is located on a portion of a resonator (top and bottom) that resonator (*sic*) extends along a longitudinal axis that is inclined to the axis (it partially encloses the path) that extends along the path.

The path is curved about a rotational axis and the side surfaces restrain movement of the driven element along that rotational axis.

Maeno et al. do not show the driven element rotating about an axis passing through that portion of the two planes that each contain one of the side surface when the path is curved, and with the driven element translating along an axis that does not pass through those portions of the planes when the path is straight.

For Maeno et al. to meet the contact and drive component arrangement the only thing required would be to replace component 201b with 202b and vice versa, *mutatis mutandis*. Absent an assertion of unexpected results, change to this arrangement does not make the invention patentably distinct. *In re Dailey*, 357 F.2d 669, 149, USPQ 47 (CCPA 1966).

Claims 12 and 14-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tobe et al. (US 6,091,179) in view of Zumeris et al. (US 5,640,063). Zumeris et al. show (e.g. fig. 4) a drive system comprising at least one vibrating motor (36) at least one of the resonator contact area (90) and the device (70) surface having a surface profile configured to guide the device (70) along the path and contacting the other of the resonator contact area (90) and device surface (92) by having side surfaces located on opposing sides of the path with each side surface in contact with the device to keep the device between the side surfaces and on the path, with the driven element rotating about an axis passing through that portion of the two planes that each contain one of the side surface when the path is curved, and **with the driven element translating along an axis that does not pass through those portions of the planes when the path is straight.**

The vibrating generator is made of a piezoelectric material. See ABSTRACT.

The drive system comprises at least two motors that are arranged in the same orientation to drive the driven element in the same direction. See figs. 2, 3A, 5, 6, 10A and 11.

Citation that the motors are urged against the driven device with respective forces that differ from each other is an intended use of the plurality motors and does not carry patentable weight, since it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ2d 1647 (1987).

The motors are controllable individually. See for example col. 2, lines 40-47. Note also that this is an intended use.

The motors are controllable in parallel.

The motors are operable at differing frequencies. See for example col. 2, lines 40-47. Note also that this is an intended use.

Citation that the motors may each operate at differing amplitudes is an intended use of the plurality motors and does not carry patentable weight, since it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ2d 1647 (1987).

The motors move the driven device in two different directions. These are up and down directions. See col. 1, lines 9-12 in which the device opens and closes car windows.

The force of the generated motion is predetermined by the position of the driven device or the angle of the transducer relative to the driven device when the excitation to the motor remains the same. Note that this is simply a law of physics that any force-angle relationship would entail.

Zumeris et al. don't show discrete components per se, i.e. at least one vibration generator each as well as at least one resonator each. They instead show a single vibration generator which encompasses the generating and resonating functions.

It would have been obvious to one having ordinary skill in the art to employ plural motors in the device of Tobe et al. such as is taught by Zumeris et al. since this would

allow for a greater variety of loads to be driven as taught by Zumeris et al. Recitation of how the devices are driven is clearly a matter of goals of the invention since no controller is definitively claimed.

Allowable Subject Matter

Claims 21-38, 48, 49, 51 and 61-63 are allowed.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Direct inquiry to Examiner Dougherty at (571) 272-2022.

tmd

July 2, 2007

Thomas M. Dougherty

TOM DOUGHERTY
PRIMARY EXAMINER